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Do Family Support Environments Influence Fertility? Evidence from 20 European Countries

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Abstract Using data from two recent waves of the European Social Survey, we examine the relationship between macro-level supports for child rearing and individual-level fertility outcomes. We characterize country-level support environments across a broader set of domains than is typical, including supports from institutions, labor markets, extended families, and male partners. With rare exceptions, we find significant relationships between family support environment indicators and second or higher order births. In contrast, the relationship between family support environment indicators and first births is weaker and less often significant. This pattern accords with theory that practical considerations are more important for the second and subsequent births than for the transition to parenthood. Although most forms of support are positively related to fertility, we document a negative relationship between intergenerational exchange of support and higher order fertility. Our analyses also reveal that macro-level support environments are related to childbearing plans in much the same way as they are related to having a child, buttressing the argument that understanding the determinants of childbearing plans can help us to understand childbearing behavior.

Keywords Fertility · Fertility intentions · European fertility · Family policy · Labor markets · Intergenerational exchange · Gender equity · Housework

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1 Introduction

Understanding the heterogeneity in fertility levels across advanced societies has been a pressing policy and research concern during the last two decades. As some countries, such as the US and France, have fertility rates that oscillate not far from replacement levels, other countries in Southern, Central, and Eastern Europe (as well as, more recently, in South-Eastern Asia) have experienced “lowest-low” fertility levels, with total fertility rates below 1.3 children per woman (Kohler et al. 2002; Morgan and Taylor 2006). Although recent research presents evidence of a fertility rebound from the lowest-low levels (Goldstein et al. 2009), sustained periods of low fertility in the recent decades and the persistence of low fertility in many countries have fueled concerns about population decline, population aging, and high dependency ratios (Bloom et al. 2010; Kohler et al. 2006; Sleebos 2003). In response to these concerns, some countries have implemented, and others are considering, a range of policies designed to defray the costs of childbearing by providing greater support for child rearing (Bongaarts 2008; McDonald 2002; Hoem 2008; Philipov 2009).

A great deal of published research has debated the questions of whether policies should aim to increase fertility and whether that aim is feasible (Gauthier and Philipov 2008; Hoem 2008). Much of this research has focused on policies that would target fertility directly such as paid parental leave or child and family benefits (Gauthier 2007). In addition to these targeted policies, demographers have also considered the influence of broader contexts such as labor markets, educational systems, and a range of other macro conditions that may have indirect effects on fertility (Rindfuss and Brauner-Otto 2008). Our paper contributes to this literature, by defining support environments in broad terms and addressing whether and how macro support environments are related to fertility at the individual level.

Using data from the second and fourth wave of the European Social Survey (ESS), collected between 2004 and 2005 and between 2008 and 2009, we examine how support for parenting at the country level is associated with planning a child and having a child over a 3-year period. We examine support for child rearing from institutions, labor markets, extended families, and male partners in 20 European countries that are heterogeneous in terms of supports and fertility levels (Gauthier and Philipov 2008). Most prior research has tended to focus on either institutional supports for families, labor market conditions, or gender equity in the division of household labor. We combine these domains in a multilevel international analysis and add a less commonly explored domain: extended family supports and obligations.

Our analysis distinguishes between first and higher order births. The lowest-low fertility levels have largely stemmed from an increase in one-child families and a concomitant decrease in families with more than one child, rather than from an increase in childlessness (Kohler et al. 2002; Billari and Kohler 2004; Morgan 2003). For these reasons, understanding the determinants of higher order fertility intentions and births is a crucial element in explaining variation in fertility cross-nationally and for gathering insights into fertility changes over time.

An additional contribution of our paper comes from our analysis of both fertility intentions and births. Although we lack longitudinal data, we harness the repeat cross-sectional design of the ESS to report on the macro-level correspondence between fertility intentions and births and on the consistency between the macro-level predictors of fertility intentions and of births at the individual level. Prior research has justified the use of fertility intentions, in part, on the basis that individual-level predictors of intentions and births are consistent (Rindfuss et al. 1988), but the question of whether the *macro-level* predictors of intentions and births are consistent is an open one.

2 Support Environments and Fertility

2.1 Overview

In recent years, demographers have drawn on the theory of planned behavior and developed alternative theoretical frameworks to map out the antecedents of fertility intentions and behavior (Fishbein and Azjen 2010; Morgan and Bachrach 2011; Miller et al. 2004). This theoretical scholarship aims for a comprehensive accounting of the individual- and macro-level conditions that lead to and constrain childbearing plans and the realization of those plans. Our analysis focuses on macro-level predictors of individuals' childbearing plans and births. Our approach addresses a call for greater attention to macro-level influences on fertility behavior and for macro–micro analyses (Morgan and Bachrach 2011; Philipov et al. 2009). Our framework assumes macro-environmental conditions that lessen the costs of child rearing will be associated with higher levels of fertility intentions and of births at the individual level.

In advanced economies, the direct and indirect costs of children are high (DiPrete et al. 2003; Morgan and Taylor 2006). In the recent decades, the rise in women's labor force participation has increased the opportunity cost of childbearing. The rising costs associated with child rearing can be expected to exert a negative influence on fertility rates (Becker 1960). The issue of the role compatibility between motherhood and paid employment has become central as, with rare exceptions, women's labor force participation rates have risen to high levels and fertility has fallen to below replacement level across Europe (Esping-Andersen 2009). The importance of family support environments in mitigating role incompatibility has become a rich area of inquiry as the macro correlation between women's employment and fertility has changed from negative to positive over the recent decades (Engelhardt et al. 2004; Billari and Kohler 2004; Brewster and Rindfuss 2000; Rindfuss et al. 2003). In the recent years, the countries with high female labor force participation rates are the same countries that are sustaining fertility levels close to replacement levels, suggesting that differences in macro support environments may be quite influential for fertility (Rindfuss et al. 2003).

Supports for mothers from a variety of sources can help to resolve the role incompatibility between motherhood and paid employment and subsidize the monetary and time costs of child rearing, thereby potentially exerting a positive

influence on fertility rates (Bernhardt 1993; Brewster and Rindfuss 2000; Rindfuss and Brauner-Otto 2008). Below, we outline theoretical expectations and summarize prior research on different aspects of family support environments and their relationship to fertility.

2.2 Institutions and Labor Markets

Public expenditures on families can subsidize the cost of child rearing in a number of ways. These expenditures include spending on parental leave from paid employment, cash transfers to families with children, and public child care programs.

The generosity and targeting of public expenditures on families varies widely across European countries. Many scholars have identified welfare state regimes that take a similar approach to supporting families with children (Esping-Andersen 1990; Gornick et al. 1997; Thévenon 2011). In one recent example, Thévenon (2011) used principal components analysis of detailed policy and expenditure data across OECD countries to identify several distinct country clusters. Nordic countries tend to be generous and continuous in their support for combining work and family; Southern European countries offer the most minimal supports for child rearing; and Eastern European countries offer meager cash and in-kind assistance for families and vary widely in their leave and child care policies. Continental European countries are classified as having high spending, universal benefits, varied leave and care policies, and a tax system that reinforces the male breadwinner model. In contrast, Anglo-Saxon countries spend less and target benefits to low-income families. Although countries are assigned to clusters based on common underlying approaches to supporting families, nevertheless, countries within clusters vary widely in their generosity and combination of policy supports. Therefore, these typologies are quite useful for descriptive purposes, but a great deal of variation would be lost if we were to analyze welfare regime rather than particular country policies and conditions when attempting to understand variation in fertility across European countries.

A review of prior research finds that more generous leave policies and family allowances have a small, positive association with fertility (Gauthier 2007). This review suggests that the small positive effect may be mostly on the timing of births rather than on completed fertility, and points out that findings vary across studies from null to small and positive. Many of the studies included in the review focus on a particular set of policies. For instance, one set of studies focuses on child care affordability and availability and finds a positive relationship with fertility (Baizán 2009; Del Boca 2002; Rindfuss et al. 2007, 2010; DiPrete et al. 2003; Castles 2003). In contrast to focusing on one set of policy supports, an alternative approach is taken by Kalwij (2010), which suggests that the types and targeting of policies may not matter as much as the total generosity and quantifies supports for families in aggregate dollar terms. In this study, he finds that greater expenditures are associated with higher fertility (Kalwij 2010).

Although most of the emphasis in prior research has been on family leave, cash and in-kind transfers to families, and child care access and quality, there is an

argument to be made for casting a wider net in defining institutional supports for child rearing. This argument was made in early work by Ermisch (1986) in which he highlighted policy changes in areas such as education, macroeconomic policy, and social insurance that influenced family and household behavior. A more recent study finds that, at advanced levels of development, the Human Development Index (which factors together the economic, educational, and health conditions in a society) is positively associated with fertility levels (Myrskylä et al. 2009). This recent work is suggestive that education and health systems may have some bearing on fertility decisions. A handful of other studies have suggested that health and educational systems may influence fertility (Rindfuss and Brauner-Otto 2008; Toulemon 2011; Fanti and Gori 2010).

Looking beyond policy supports for child rearing, a large body of prior research provides evidence that labor market strength, economic stability, and labor market flexibility have pro-natal influences (Sobotka et al. 2011; Kohler et al. 2002). Several studies have found that stronger labor markets and employment stability are positively associated with fertility at the country level (Adsera 2004; Castles 2003; Goldstein et al. 2009). Research has found a similar positive relationship between favorable macroeconomic conditions and individual-level fertility outcomes (Bai-zán 2007; Adsera 2011).

Stronger and more flexible labor markets from the workers' perspective may afford mothers the option of exiting and re-entering the labor market or more bargaining power to negotiate ways to combine work and family. In theory, family-friendly policies such as flexible work schedules can be expected to encourage fertility. Many studies have proposed this theoretical possibility (Rindfuss et al. 2003; Morgan 2003); but the relationship between flextime and fertility has rarely been studied in a cross-national context, with one exception—Castles (2003) finds a significant positive correlation between flexible work schedules and the period TFR in 1998 in 18 OECD countries.

2.3 Extended Families and Division of Labor in Families

In theory, help from extended family with child care or finances should lessen the opportunity and direct costs of childbearing in the same manner as child care or financial support from public sources. Historically, strong extended family ties were expected to encourage higher levels of fertility because of the support that extended families could provide to young families (Hirschman 1994). Studies have documented long-standing differences between the relatively weak family ties that characterize Northern and Western Europe and the strong family ties typical of the Southern, Mediterranean region (Dalla Zuanna and Micheli 2004; Reher 1998; Kalmijn and Saraceno 2008). (This prior research has generally not included Eastern European countries.) Some authors have proposed a connection between the strong familism that characterizes Southern European countries, late home leaving, and delayed fertility and low completed fertility (Dalla Zuanna and Micheli 2004).

Cultures in which extended family ties are strong may have opposing influences on childbearing intentions. On the one hand, these ties may have a pro-natal effect if

children are seen as a social resource that strengthens intergenerational bonds, if downward support from grandparents subsidizes the rearing of grandchildren and if children are seen as a source of support in one's old age (Schoen et al. 1997; Dalla Zuanna and Micheli 2004; Rendall and Bahchieva 1998). Prior research provides some evidence of a positive relationship between grandparental coresidence or support and fertility in Italy, France, and the UK (Del Boca 2002, 2004). On the other hand, support obligations to the grandparent generation may curb fertility. As population aging and high dependency ratios become a concern in advanced societies, more attention is being paid to the so-called "sandwich generation," the generation of middle-aged adults that may face simultaneous obligations to support elderly parents and dependent children (Grundy and Henretta 2006). A sandwich generation effect may in theory create an incentive for adult children to limit their support obligations by limiting their family size.

Another type of familial influence is the male/female division of labor within households, which varies significantly across country contexts (Cooke and Baxter 2010). Theory and research have suggested that a lack of gender equity in households, coupled with opportunities for women in the labor market, have a dampening effect on fertility (McDonald 2000). Many studies at the individual level have found a positive correspondence between gender equity in the household and fertility. Studies in a range of country contexts have found that male partners' contributions to housework and fathers' use of parental leave to care for young children are positively related to fertility intentions and childbearing (Mills et al. 2008; Cooke 2009; Andersson and Duvander 2006; Duvander et al. 2010; Torr and Short 2004; Brodmann et al. 2007). Cross-national studies of OECD countries have also found a positive relationship between male contributions to housework and fertility (de Laat and Sevilla-Sanz 2011; Feyrer et al. 2008).

2.4 Short-Term Fertility Intentions and Births

A challenge in addressing the question of how family support environments influence fertility is that: by the time we can measure completed cohort fertility, family support environments may have changed considerably. For this reason, we focus on individual-level fertility measures over a relatively short, 3-year period. This approach offers some additional advantages over the alternative of using the TFR as the dependent variable. One advantage is the ability to distinguish between first births and higher parities. A second advantage is that both fertility intentions and births can be analyzed. Another advantage is that individual-level control variables can be incorporated such as parity, religiosity, and partnership status.

In analyzing the family support environment and fertility, distinguishing first births from higher order births is desirable from practical and theoretical perspectives. Low fertility stems from a decline in high parity births more so than a decline in first births (Kohler et al. 2002; Billari and Kohler 2004; Morgan 2003). Morgan (2003) suggests that, in low fertility contexts, motives for first and even second births remain intact but the cost and disutility of children curb higher parity births. In earlier comparative survey research, people were less likely to cite financial constraints as a reason to forego a first birth, but these types of rational

considerations were more important for higher order births (Bulatao 1981). Other work has highlighted uncertainty reduction and social capital building as motivations for childbearing (Friedman et al. 1994; Morgan and King 2001; Astone et al. 1999; Schoen et al. 1997). Uncertainty reduction and social capital motives may be stronger for first births, because of diminishing marginal returns in these areas for second and higher order births.

Prior research on family support environments and fertility has most often used the TFR as an outcome (Gauthier 2007), and does not distinguish effects by parity. Some exceptions are found in country case studies that examined the relationship between family policies and fertility by parity in the UK, Canada, and Norway and found that family supports encouraged higher order births in particular (Duclos et al. 2001; Ermisch 1988; Lappegard 2010).

Our parallel analyses of fertility intentions and births offers new information about the consistency in the macro-level predictors of childbearing plans and of childbearing behavior. Fertility intentions can provide an early indicator of how current family support environments will be related to future fertility. Although there is a considerable debate in the literature about the predictive validity of fertility intentions, short-term intentions for transitioning to the next parity tend to have higher predictive validity than lifetime intentions (Philipov 2009; Schoen et al. 1999; Miller and Pasta 1994, 1995). Further, Rindfuss et al. (1988) found that the individual-level predictors of fertility intentions and births were similar. Therefore, if their finding is generalizable, understanding the predictors of fertility intentions will help us to understand fertility, even when the two outcomes themselves do not perfectly correspond.

3 Data and Methods

3.1 ESS Data

We use data from the 20 European countries that were included in both Waves 2 and 4 of the European Social Survey (ESS-2 and -4), administered in 2004–2005 and 2008–2009, respectively.¹ The ESS-2 and -4 samples are designed to be representative of the populations in each of the participating countries. On average, the response rate was 63 % for ESS-2 and 62 % for ESS-4. The country sample includes two-thirds of the countries in the European Union and two additional countries not in the European Union (Norway and Switzerland).

The ESS is a biennial social survey that aims at measuring attitudes, values, and behaviors of Europeans in a comparative perspective. The questionnaire for each round consists of a core module and rotating modules. In the ESS-2, the rotating module on family, work, and well-being included a question on fertility intentions and a series of questions related to support for child rearing from partners, families,

¹ The 20 countries in our sample are Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, the Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, and the UK.

and institutions. We use ESS-2 for our measure of fertility intentions as well as to derive measures of family support environments in 2004–2005. We use ESS-4 for our measure of births between 2004–2005 and 2007–2008.

For our analysis of fertility intentions, our analytical sample is restricted to women 18–40 years old at the time they completed the ESS-2 survey. Of the 7,440 respondents that meet this criterion, 484 (7 %) were excluded because they were missing on the dependent variable and another 196 (3 %) were excluded because they were missing on one of our independent variables, resulting in a sample of 6,760 female respondents, of which 3,073 were childless women and 3,687 were mothers.

For our analysis of births, our analytic sample is restricted to women 22–44 years old at the time they took the ESS-4 survey. This sample is chosen to correspond to the ESS-2 sample, aged by 4 years. Of the 7,495 respondents that meet this criterion, 59 (1 %) were excluded because they were missing on one of our independent variables. Our analytic sample consists of 7,436 women, of which 3,790 were childless and 3,646 were mothers in 2004. The country/wave sample sizes averaged $n = 177$ and ranged from $n = 106$ to 346.

3.2 Dependent Variables

Fertility intentions at the individual level are based on women's responses to a question in ESS-2 that asks "Do you plan to have a child within the next three years?" Responses of "probably yes" and "definitely yes" are coded 1 and responses of "definitely not" or "probably not" are coded 0. During data collection, respondents who were pregnant at the time of the interview were automatically coded as "definitely yes." Table 1 shows that 30 % of women in our sample plan to have a child in the next 3 years. In this paper, we use the terms "intentions" and "plans" interchangeably, in keeping with the definition of intentions as "what one actually plans to do given the reality within which one ordinarily operates" (Miller et al. 2004, p. 194).

We use the household roster collected in ESS-4 to determine if a mother had a child between 2004 and 2007. If a mother reports having a child between 1 and 4 years old present in her household, we record this as "having a birth between 2004 and 2007." A limitation of our "birth" measure is that children not living with mothers or stepmothers and deceased children are not counted. Our measure of having a child does not distinguish between biological, adopted, foster, or step children, but these distinctions are not necessary for our analytic purposes. Although our measure of "having a birth between 2004 and 2007" includes adoption and step-parenthood, we use the term "birth" as a shorthand for "had a birth between 2004 and 2007 or adopted or became a step-mother to a 1 to 4 year old child."

3.3 Macro Independent Variables

Each of our key independent variables is measured at the country level and is categorized into one of four domains: institutions, labor markets, extended families, and division of labor in families. We aimed to be as broad and comprehensive as

Table 1 Descriptive statistics

	Mean or %	Standard deviation	Range
Individual level, ESS-2 (<i>n</i> = 6,760)			
Plans to have a child within 3 years (probably or definitely, %)	30.4		
Lives with partner (%)	59.5		
Age (years)	30.0	6.64	18 to 40
Religiosity scale (0 = not at all religious, 10 = very religious)	4.6	2.94	0 to 10
Has a child (%)	0.5		
Age of the youngest child (years)	5.9	4.71	0 to 23
Individual level, ESS-4 (<i>n</i> = 7,436)			
Had a child between 2004 and 2007 (%)	21.4		
Age (years)	33.7	6.5	22 to 44
Religiosity scale (0 = not at all religious, 10 = very religious)	4.5	3.0	0 to 10
Had one or more children before 2004 (%)	49.0		
Country level (<i>n</i> = 20)			
Expenditures on families as % of GDP	2.1	0.8	0.84 to 3.80
Paid parental leave (weeks)	28.8	17.7	11 to 68
Satisfaction with government (scale with 10 = most satisfied)	4.2	1.0	2.3 to 6.2
Satisfaction with education system (scale with 10 = most satisfied)	5.6	1.0	4.1 to 8.0
Satisfaction with health system (scale with 10 = most satisfied)	5.1	1.1	3.0 to 6.9
Unemployment rate	8.3	4.1	4.3 to 19
Flexible work hours (scale with 4 = most flexibility)	1.8	0.3	1.4 to 2.4
Perceived job mobility (scale with 10 = most mobility)	4.5	1.0	3.0 to 6.7
Perceived job security (scale with 10 = most security)	2.7	0.3	1.9 to 3.2
Satisfaction with economy (scale with 10 = most satisfied)	4.6	1.2	2.6 to 6.6
Prevalence of support from grandparents ^a	0.0	1.0	-2.0 to 1.8
Prevalence of support to grandparents ^a	0.0	1.0	-1.3 to 2.1
Multigenerational households (%)	33.0	15.8	15.5 to 61.1
Male housework share in dual-earner couples (%)	25.4	5.5	11.4 to 35.2
Overall family support environment ^a	0.0	1.0	-1.6 to 1.7

The 20 countries are Austria, Denmark, Estonia, Finland, Norway, Sweden, the UK, Belgium, France, Germany, the Netherlands, Switzerland, Czech Republic, Hungary, Poland, Slovakia, Slovenia, Greece, Portugal, and Spain

Source ESS Waves 2 and 4. Country-level data from aggregated ESS-2 responses except “expenditures on families” and “unemployment rate” which come from Eurostat, and “weeks paid parental leave,” which come from the ILO Travail database

^a Factor definitions in Appendix Table 6

possible in measuring the family support environment. Whenever possible, we use a variety of indicators to capture different dimensions of the family support domain.

In defining family support environments, we draw on three types of information. First, we use *objective measures* of the macro environment including percent of GDP directed toward families, weeks of paid parental leave, and the unemployment rate. Second, we aggregate individual survey responses up to the country level to describe the *collective experiences* in a country. The variables that reflect the average experience in a country include having flexible work hours, upward and downward intergenerational support, multigenerational coresidence, and the portion of housework performed by male partners in dual-earner couples. Third, we use survey reports aggregated to the country level that measure the *perceptions* of various aspects of the family support environment. The perception measures include average levels of satisfaction with government, education systems, health services, and the economy in a country; and perceptions of one's own job mobility and job security. We expect women's perceptions of the support environment to influence childbearing decisions by shaping women's expectations of the benefits and costs of childbearing (Neyer and Andersson 2008). For this reason, we argue that perceptions provide a useful extension of the literature on supports for child rearing and fertility outcomes.

3.3.1 Institutions

"Expenditures on families as a percent of the GDP" come from The European System of Integrated Social PROtection Statistics (Eurostat 2008). These expenditures represent governmental support for child rearing in the form of parental leave benefits, family and child allowances, and child care services and subsidies.

"Weeks of paid parental leave" are derived from the International Labour Organization (ILO) Travail legal database. This measure represents the number of weeks of fully paid maternity, paternity, and parental leave. For countries that replace 100 % of wages, the weeks of leave and the weeks of fully paid leave are identical. For countries that replace some fraction of earnings, weeks of fully paid leave is calculated as the number of weeks of leave multiplied by the wage replacement rate.

We also incorporate three measures of satisfaction with institutions based on the following ESS-2 questions: (1) ...thinking about the [country] government, how satisfied are you with the way it is doing its job? (2) ...please say what you think overall about the state of education in [country] nowadays? (3) ... please say what you think overall about the state of health services in [country] nowadays? Questions were answered on a scale of 0–10, with 10 being most satisfied. We aggregate the responses of our sample of women 18–40 years old up to the country level. These measures of satisfaction with government, health systems, and education systems capture elements of the lived experience of women making their childbearing decisions. We hypothesize that when reported satisfaction with these institutions is higher, women are likely to feel a greater sense of stability, which in turn can be expected to have a pro-natal influence.

3.3.2 Labor Market Domain

The unemployment rate in 2004 comes from the ILO's Labour Statistics Database.

Four additional labor market indicators are derived from the ESS-2 survey. For each of these variables, we aggregate the responses of employed 18–40 year old women to the country level, and higher values indicate more favorable labor market conditions for workers.

Our “Flexible work schedules” variable is based on the ESS-2 survey question that asks respondents whether they agree: “I can decide the time I start and finish work.” The four response categories range from 1 = *not at all true* to 4 = *very true*.

“Job mobility” is based on responses to the ESS-2 question: “How difficult or easy would it be for you to get a similar or better job with another employer if you wanted to?” with a clarifying note: “similar in the sense of ‘as good as.’” Responses are on a scale of 0–10 with 10 meaning *extremely easy*.

To measure “job security,” employed respondents were asked if they agree with the statement “My job is secure.” The responses ranged from 1 = *not at all true* to 4 = *very true*.

Last, we measure “satisfaction with economy” based on the question, “On the whole how satisfied are you with the present state of the economy in [country]?” Responses ranged from 0 = *extremely dissatisfied* to 10 = *extremely satisfied*.

3.3.3 Extended Family Domain

“Support from grandparents” is a factor that combines measures of financial support, housework, and childcare that grandparents provide to their adult children. Two components are based on the ESS-2 questions, “How much financial support do you currently provide to your children or grandchildren who live apart from you?” and “How much support in everyday housework or care do you provide for your grown up children or grandchildren who live apart from you?” The third component is a dichotomous indicator that grandparents were used as the usual source of child care. Each of these components were aggregated to the country level, combined into a scale using principal components factor analysis, then normalized to mean = 0 and standard deviation = 1. The α reliability coefficient for the scale is 0.69. Each component has a positive factor loading; therefore, higher values on the factor indicate greater availability of support from grandparents (see Appendix Table 6 for more details).

“Support to grandparents” is a factor that combines measures of financial support and housework that adult children provide to the grandparent generation. The components are based on ESS-2 questions that ask: “How much financial support do you currently receive from your grown up children or grandchildren who live apart from you?” and “How much support with your everyday housework or care do you currently receive from your grown up children or grandchildren who live apart from you?” Responses were aggregated to the country level, combined into a factor using principal components factor analysis, then normalized to mean = 0 and standard deviation = 1. The factor loadings are positive for each component, and higher

values on the factor can be interpreted as greater support obligations to grandparents (see Appendix Table 6 for more details).

“Multigenerational coresidence” is based upon the household roster and is the percent of households that contain an adult and at least one of that adult’s parents.

3.3.4 *Division of Labor in Families*

“Male housework share in dual earner couples” is based on two ESS-2 questions—one asks women to report the percentage of housework male partners perform during the week and the other asks about weekends. Our measure is a weighted average of these two responses ($(5 \times \text{male contribution on weekdays}) + (2 \times \text{male contribution on weekends})$) divided by 7. The macro measure is the country average for employed women aged 18–40 years old who were living with a male partner or husband. In the average country in our sample, males contribute 22 % of the housework in dual-earner couples. We restrict our housework measure to employed women. Female labor force participation rates averaged 65 % across countries and exceeded 50 % in all countries. We expect male housework to be most important in dual-earner couples, but nevertheless our results are similar when we substitute a measure of male housework for all couples.

3.3.5 *Overall Family Support Environment*

The “Overall family support environment” combines all measures of the family support environments into a single factor. Principal components analysis yielded one factor that captures 50 % of the variation in its 14 components (Eigenvalue = 6.8). (The second factor identified by principal components analysis had an Eigenvalue of 1.6, was not related to fertility outcomes, and was not included in our subsequent analyses.) For the “overall family support environment” variable, higher values represent higher levels of expenditures on families; greater satisfaction with government, education, health services, and the economy; more favorable labor market conditions; greater contributions of male partners to housework; and *lower* levels of intergenerational exchange and coresidence.

Appendix Table 7 shows all the macro-level data by country. This table shows the existence of considerable heterogeneity within and across continental regions. These macro-level descriptives suggest that Northern European countries tend to provide the most supportive environments for families in institutional, labor market, and male partner domains, with Western European countries trailing not too far behind. Eastern European countries tend to rank high on support from grandparents and support obligations to grandparents and tend to have the worst labor market conditions. Southern European countries tend to rank low on supports for child rearing, and stand out as particularly low on male contributions to housework.

Table 2 presents pairwise correlations for our macro-level variables. Two broad patterns are noteworthy. First, policy, labor market, and male partner domains are positively correlated. Countries with supportive policy environments also tend to have favorable labor market conditions and greater housework contributions from male partners. Second, the extended family domain is negatively correlated with the

Table 2 Correlation matrix of macro-level variables

Country-level (<i>n</i> = 20)	(1a)	(1b)	(1c)	(1d)	(1e)	(2a)	(2b)	(2c)
(1a) Family expenditures % GDP	1							
(1b) Weeks paid parental leave	0.61 (0.00)	1						
(1c) Satisfaction with government	0.40 (0.08)	-0.01 (0.96)	1					
(1d) Satisfaction with education system	0.31 (0.19)	-0.07 (0.77)	0.69 (0.00)	1				
(1e) Satisfaction with health services	0.36 (0.12)	-0.23 (0.33)	0.68 (0.00)	0.64 (0.00)	1			
(2a) Unemployment rate	-0.35 (0.14)	-0.18 (0.46)	-0.47 (0.04)	-0.19 (0.43)	-0.25 (0.29)	1		
(2b) Flexible work hours	0.32 (0.17)	-0.16 (0.50)	0.57 (0.01)	0.50 (0.02)	0.68 (0.00)	-0.32 (0.17)	1	
(2c) Perceived job mobility	0.30 (0.21)	-0.11 (0.64)	0.64 (0.00)	0.57 (0.01)	0.54 (0.01)	-0.46 (0.04)	0.49 (0.03)	1
(2d) Perceived job security	0.20 (0.41)	-0.09 (0.71)	0.65 (0.00)	0.43 (0.06)	0.34 (0.15)	-0.71 (0.00)	0.38 (0.09)	0.65 (0.00)
(2e) Satisfaction with economy	0.45 (0.05)	0.07 (0.76)	0.88 (0.00)	0.81 (0.00)	0.66 (0.00)	-0.48 (0.03)	0.49 (0.03)	0.73 (0.00)
(3a) Support from grandparent generation	0.08 (0.73)	0.16 (0.50)	-0.58 (0.01)	-0.32 (0.17)	-0.24 (0.31)	0.24 (0.31)	-0.37 (0.11)	-0.61 (0.00)
(3b) Support to grandparent generation	-0.34 (0.14)	-0.03 (0.90)	-0.62 (0.00)	-0.34 (0.15)	-0.39 (0.09)	0.36 (0.12)	-0.56 (0.01)	-0.55 (0.01)
(3c) Multigenerational households	-0.40 (0.08)	0.08 (0.73)	-0.54 (0.01)	-0.45 (0.04)	-0.41 (0.07)	0.66 (0.00)	-0.63 (0.00)	-0.62 (0.00)
(4) Male housework share	0.33 (0.16)	0.18 (0.44)	0.50 (0.02)	0.53 (0.02)	0.47 (0.04)	-0.04 (0.86)	0.48 (0.03)	0.59 (0.01)
(5) Overall family support environment	0.47 (0.04)	-0.02 (0.94)	0.89 (0.00)	0.75 (0.00)	0.72 (0.00)	-0.53 (0.02)	0.73 (0.00)	0.81 (0.00)
Country level (<i>n</i> = 20)	(2d)	(2e)	(3a)	(3b)	(3c)	(4)	(5)	
(1a) Family expenditures % GDP								
(1b) Weeks paid parental leave								
(1c) Satisfaction with government								
(1d) Satisfaction with education system								
(1e) Satisfaction with health services								
(2a) Unemployment rate								
(2b) Flexible work hours								
(2c) Perceived job mobility								

Table 2 continued

Country level ($n = 20$)	(2d)	(2e)	(3a)	(3b)	(3c)	(4)	(5)
(2d) Perceived job security	1						
(2e) Satisfaction with economy	0.75 (0.00)	1					
(3a) Support from grandparent generation	-0.45 (0.04)	-0.50 (0.03)	1				
(3b) Support to grandparent generation	-0.52 (0.02)	-0.58 (0.01)	0.67 (0.00)	1			
(3c) Multigenerational households	-0.57 (0.01)	-0.51 (0.02)	0.46 (0.04)	0.56 (0.01)	1		
(4) Male housework share	0.35 (0.13)	0.62 (0.00)	-0.52 (0.02)	-0.45 (0.05)	-0.29 (0.21)	1	
(5) Overall family support environment	0.73 (0.00)	0.92 (0.00)	-0.64 (0.00)	-0.73 (0.00)	-0.74 (0.00)	0.66 (0.00)	1

Correlation coefficients and (p values)

Source country-level data from aggregated ESS-2 responses except “family expenditures % GDP” and “unemployment rate” which come from Eurostat; and weeks paid parental leave, which come from the ILO Travail database

other domains. Countries with higher levels of intergenerational exchange and coresidence tend to have less supportive policy environments, labor markets, and male partners. This inverse correlation may indicate that extended families and other domains of support act as substitutes.

3.4 Individual-Level Control variables

In our analyses of fertility plans, we control for age, age squared (to allow for nonlinearities in the relationship between age and fertility), religiosity on a scale of 0–10, having one or more children in 2004, and the age of the youngest child when applicable. All these control variables come from ESS-2.

In our analyses of births, a similar set of control variables is derived from ESS-4, which took place in 2008. We are interested in controlling for whether a woman had one or more children *in 2004*. Women who have at least one child 5 years or older in the ESS-4 household roster or who reported having older children living elsewhere in ESS-4 were coded as having a child in 2004. Two variables that are included in the analysis of planning a child are omitted from the analysis of having a child: we do not control for partnership status or age of the youngest child because we lack complete information for the relevant 2004 time period for these variables. When we exclude these two variables from our analysis of planning a child for consistency, the results are almost identical to those we present.

3.5 Methodological Approach

We use multilevel, logistic regression models, where individual respondents (level 1) are nested within countries (level 2).² These models include random intercepts at the country level and account for the fact that women within a country are likely to have more highly correlated responses than women in different countries. We executed models in Stata 10 using the `xtmelogit` command and used post-estimation commands to test the joint significance of sets of predictors (`lincom` command) and to derive the predicted probabilities from our multilevel regression model estimates (`adjust` command).

To generate our Table 4 and 5 regression results, our models include measures of family support environments and an interaction between family support environments and parenthood status (1 = has a child, 0 = childless). The main effects represent the relationship between family support environments and first birth intentions or first births. The main effect plus the interaction term represents the relationship between family support environments and higher order birth intentions or higher order births. We test the joint significance of the main effect and interaction term to determine the statistical significance of the relationship between

² We investigated a three-level approach in which individual fertility intentions and births were modeled as a function of national *and* within-country, regional support environments. We found that the within-country regional variation in fertility intentions and births was overshadowed by the cross-country variation. We note that the ESS sample was designed to represent national populations but not sub-country regional populations, and cell sizes for regions were small, around $n = 40$ on average, once our sample restrictions were applied.

family support environments and higher order intentions or births. For all of our models, we include one macro-level variable at a time, for a ratio of 20 macro-level observations per macro-level predictor.

4 Results

4.1 Descriptive Results

Short-term childbearing intentions and actual births vary widely across countries, as shown in Table 3.

Table 3 Country percentages for dependent variables

	Planning a child, 2004–2007		Had a child, 2004–2007	
	Intend first birth (%)	Intend higher order birth (%)	Had first birth (%)	Had higher order birth (%)
Northern	42	27	29	26
Denmark	47	25	34	18
Estonia	43	26	27	16
Finland	43	33	23	30
Norway	43	31	30	29
Sweden	38	31	30	29
UK	41	18	27	30
Western	39	24	21	24
Austria	29	18	9	17
Belgium	39	23	22	28
France	57	32	30	33
Germany	31	15	20	19
Netherlands	37	27	27	24
Switzerland	43	28	17	21
Eastern	39	18	21	18
Czech Republic	43	18	22	19
Hungary	45	18	25	16
Poland	46	18	19	21
Slovakia	28	17	21	18
Slovenia	34	19	20	17
Southern	35	25	15	16
Greece	37	24	10	17
Portugal	33	22	18	14
Spain	34	29	16	18

Percentage values for Northern, Western, Eastern, and Southern Europe are simple averages of the country percentages within each continental region

Source planning a child comes from ESS Wave 2. Had a child comes from ESS Wave 4

First birth intentions tend to be highest in Northern Europe. First birth intentions are somewhat lower in Western and Eastern Europe, and the lowest in Southern Europe, on average. The unusually high level of first birth intentions in France may be the result of a cash bonus for babies born after 1 January 2004 (Dorozynski 2003).

Higher order intentions are most common in the Northern Europe and in Nordic countries in particular (31–33 % of mothers are intending another child in Finland, Sweden, and Norway). Higher order intentions are slightly lower in Southern and Western Europe and lowest in Eastern Europe.

Overall, the level of first births is far below the level of first birth intentions, consistent with prior research showing that fertility plans are often delayed (Westoff and Ryder 1977; Rindfuss et al. 1988). Still, consistent with the patterns of first birth intentions, Northern Europe is highest and Southern Europe is lowest in their levels of first births. The macro correlation between our country-level estimates of first birth intentions and of first births is 0.56, reflecting a moderate level of correspondence between first births intended and actual first births across our 20 country sample.

The levels of higher order births mirror higher order intentions in Northern, Western, and Eastern Europe. In Southern Europe, higher order births fall short of higher order intentions by a relatively large margin. The macro correlation between higher order fertility intentions and higher order births is 0.55.

4.2 Family Support Environments and Fertility Intentions

Table 4 shows the estimated relationships between macro-level family support environments and fertility intentions from our multilevel, random intercept regression models. The table displays odds ratios, which represent the change in the odds of birth intentions associated with a one-unit change in the independent variable. The first column of the table displays the estimated relationship between predictors and first birth intentions, and the second column displays the relationship between predictors and higher order birth intentions. Each row represents a separate regression. The odds ratios on control variables are omitted for reasons of parsimony.

Expenditures on families as a percent of GDP is a common measure of welfare state generosity, which we expect to be positively related to fertility intentions. Table 4 shows that higher levels of expenditure on families in a country are not significantly associated with plans for a first child but are associated with plans for a higher order birth at the $p < 0.10$ level (odds ratio of 1.15). Weeks of paid parental leave is not associated with first or higher order birth intentions.

We expected three measures of satisfaction with government, education, and health services to be associated with birth intentions. In each case, greater levels of satisfaction were not associated with first birth intentions, but were positively and significantly associated with higher order birth intentions among mothers (Table 4). Satisfaction with government has the strongest relationship with higher order birth intentions. Each one-unit increase on the 10-point satisfaction-with-government scale is associated with a 30 % increase in the odds of intending a higher order birth (odds ratio of 1.30).

In the labor market domain, only one of the five measures of favorable conditions is associated with first birth intentions, but all five measures of favorable labor

Table 4 Predictors of intending a birth ($n = 6,760$ women in 20 countries)

Models	First birth intentions	Higher order birth intentions
Policy environment		
(1a) Expenditures on families as % of GDP	1.06 (0.81)	1.15 [†] (1.82)
(1b) Paid parental leave	1.00 (0.50)	1.00 (0.14)
(1c) Satisfaction with government	1.00 (0.00)	1.30*** (4.32)
(1d) Satisfaction with education system	1.08 (1.25)	1.15* (2.18)
(1e) Satisfaction with health system	0.97 (0.55)	1.13* (1.98)
Labor market environment		
(2a) Unemployment rate	1.02 (1.24)	0.96*** (2.69)
(2b) Flexible work hours	1.53* (2.07)	2.12*** (3.59)
(2c) Perceived job mobility	0.97 (0.56)	1.24*** (3.39)
(2d) Perceived job security	1.04 (0.19)	1.75*** (3.17)
(2e) Satisfaction with economy	1.02 (0.36)	1.20*** (3.64)
Extended family support environment		
(3a) Support from grandparents	1.06 (0.89)	0.81*** (3.25)
(3b) Support to grandparents	1.01 (0.10)	0.82*** (3.21)
(3c) Multigenerational households	1.00 (0.47)	0.99*** (3.52)
Division of labor in families		
(4) Male housework share	1.00 (0.21)	1.03* (2.16)
Overall family support environment		
(5) Overall family support environment	1.01 (0.12)	1.29*** (4.40)

Odds ratios and (t -statistics) from multilevel models with random intercepts at the country level. Each row is a separate regression. All models control for age, age squared, religiosity, has a previous child, youngest child age, and has a live-in partner. First birth intention odds ratios represent the exponentiated main effect of the support environment indicator on fertility intentions. Higher order birth odds ratios represent the exponentiated sum of the main effect of the support environment indicator and the support environment interacted with has a previous child

Source European Social Survey except “expenditures on families” and “unemployment rate” from Eurostat, and weeks paid parental leave from the ILO Travail database

[†] $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

market conditions are associated with higher order birth intentions. Flexible work schedules are significantly associated with first and higher order birth intentions, though the magnitude of the relationship is larger for higher order birth intentions. A one-unit increase in the four-point work schedule flexibility scale (e.g., moving from “not at all true” to “a little true” in response to “I decide when I start and finish work”) is associated with a 50 % increase in the odds of first birth intentions (odds ratio of 1.53) and a doubling of the odds of higher order birth intentions (odds ratio of 2.12). In addition, mothers are more likely to be planning to higher order birth in countries with lower unemployment rates, greater perceived job mobility, greater perceived job security, or higher levels of satisfaction with the overall economy.

In the extended family domain, we find that intergenerational exchange and coresidence are not related to first birth intentions but are *negatively* related to

higher order intentions. Although support from the grandparent generation could encourage childbearing by offsetting some of the costs of child rearing, we find the opposite relationship. In countries with more frequent intergenerational exchange and coresidence, mothers are less likely to be planning to have an additional child. One standard deviation increase in support to *or* from the grandparent generation is associated with almost a 20 % decrease in the odds of intending a higher order birth. A 1 percentage point increase in multigenerational coresidence is associated with a 1 % decrease in the odds of intending a higher order birth. One interpretation of these relationships is that anticipated obligations to the grandparent generation may compete with parity progression among women who have already become parents.

As predicted and consistent with gender equity theories of fertility, male partners' contributions to housework in dual-earner couples are associated with higher order birth intentions. A 1 percentage point increase in the share of housework done by male partners is associated with a 3 % increase in the odds of intending a higher order birth. Male partners' contributions to housework are not associated with first birth intentions.

The final model in Table 4 includes a global measure of family support environments that combines all forms of support into a single factor. Higher values on the factor represent country environments with relatively supportive institutions, labor markets, and male partners; and relatively low levels of intergenerational exchange and coresidence. Table 4 shows that higher values on the family support environment factor are associated with higher order fertility intentions but not with first birth intentions. A one standard deviation increase in the overall family support environment factor is associated with an almost 30 % increase in the odds of higher order birth intentions (odds ratio of 1.29).

The relationships between control variables and fertility intentions are in the expected directions in all the models (not shown). Intentions are positively related to women's age, and the squared term implies that this positive relationship declines at older ages. Religiosity is positively associated with fertility intentions. Living with a partner is a strong predictor of intentions. Having no children and having young children are strongly and positively associated with fertility intentions.

The statistically significant relationships in Table 4 were primarily observed for higher order birth intentions. To give a better sense of the magnitude of these significant relationships, we estimated the change in the predicted probability of planning a higher order birth associated with a one standard deviation increase in each family support environment indicator. These predicted probabilities are not shown in tables but were derived from the Table 4 regression estimates. With all the model covariates fixed at their mean values, the predicted probability of planning a higher order birth is 0.27. In other words, under average conditions in the average country, 27 % of mothers were planning to have a second or higher order birth within 3 years. A one standard deviation increase in the overall family support environment factor is associated with a 0.05 increase in the predicted probability of higher order fertility intentions from 0.27 to 0.32. The magnitude of the relationship with higher order intentions was almost as large for several individual-level components of family support environments: satisfaction with government, labor market conditions, and intergenerational exchange and coresidence. The significant

Table 5 Predictors of having a birth ($n = 7,436$ women in 20 countries)

Models	Had a first birth	Had a higher order birth
Policy environment		
(1a) Expenditures on families as % of GDP	1.14 (1.30)	1.23* (2.06)
(1b) Paid parental leave	1.01 [†] (1.68)	1.00 (0.12)
(1c) Satisfaction with government	1.07 (0.84)	1.29*** (3.01)
(1d) Satisfaction with education system	1.17 [†] (1.89)	1.20* (2.21)
(1e) Satisfaction with health system	1.00 (0.01)	1.21* (2.31)
Labor market environment		
(2a) Unemployment rate	0.98 (0.88)	0.96 [†] (1.73)
(2b) Flexible work hours	1.95* (2.44)	3.25*** (4.25)
(2c) Perceived job mobility	1.24*** (3.02)	1.33*** (4.05)
(2d) Perceived job security	1.35 (1.23)	1.67* (2.11)
(2e) Satisfaction with economy	1.09 (1.25)	1.19* (2.54)
Extended family support environment		
(3a) Support from grandparents	0.85* (2.01)	0.82* (2.35)
(3b) Support to grandparents	0.90 (1.46)	0.74*** (4.06)
(3c) Multigenerational households	0.99* (2.58)	0.98*** (4.25)
Division of labor in families		
(4) Male housework share	1.04*** (2.67)	1.04*** (2.82)
Overall family support environment		
(5) Overall family support environment	1.16* (2.14)	1.33*** (4.08)

Odds ratios and (t -statistics) from multilevel models with random intercepts at the country level. Each row is a separate regression. All the models control for age, age squared, religiosity, has a previous child. First birth odds ratios represent the exponentiated main effect of the support environment indicator on first births. Higher order birth odds ratios represent the exponentiated sum of the main effect of the support environment indicator and the support environment interacted with has a previous child

Source European Social Survey except “expenditures on families” and “unemployment rate” from Eurostat, and weeks paid parental leave from the ILO Travail database

[†] $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

relationships between satisfaction with education and health systems and male contributions to housework were slightly smaller in magnitude.

4.3 Family Support Environments and Births

Table 5 is structured in the same way as Table 4 and examines births in the period between 2004 and 2007. In general, the macro-level predictors of births resemble the predictors of fertility intentions, and the family support environment is more strongly related to higher order births than to first births.

The policy environment is only weakly related to first births, but favorable policy environments are more strongly related to higher order births. In particular, expenditures on families, and satisfaction with government, education, and health systems are significantly related to higher order births. A 1 percentage point

increase in expenditures on families is associated with a 23 % increase in the odds of a higher order birth. One-point increases on the 10-point scales of satisfaction with government, education, and health systems are associated with 20–29 % increases in the odds of a higher order birth.

Although first births are not related to the policy environment, two dimensions of labor market conditions are associated with first births. First births are more prevalent in countries with greater perceived job mobility. A 1 point increase on the 10-point perceived job mobility scale is associated with a 24 % increase in the odds of a first birth. This fits with a theme in the literature on work family conflict, highlighting the challenges of labor market re-entry after taking time off for child rearing. Therefore, this relationship is suggestive that perceived ease of labor market re-entry may have a pro-natal influence. First births are also more prevalent in countries where women reported greater control over their work hours. A 1 point increase on the 4-point scale of flexible work hours is associated with a 95 % increase in the odds of a first birth.

All the five labor market indicators are associated with higher order births, although the relationship between the unemployment rate and higher order births is only significant at the $p < 0.10$ level. The relationships between perceived job mobility and flexible work hours and higher order births achieve the highest level of statistical significance. A 1 point increase on the 10-point scale of perceived job mobility is associated with a 33 % increase in the odds of a higher order birth. A one point increase on the four-point scale of flexible work hours is associated with a 225 % increase in the odds of a higher order birth (odds ratio of 3.25).

Intergenerational exchange and multigenerational coresidence are negatively associated with first and higher order births, and the relationship is stronger for higher order births. A one standard deviation increase in support to grandparents is associated with a 26 % decline in the odds of a higher order birth (odds ratio of 0.74). This pattern is consistent with support obligations to elderly parents competing with higher order births. Although transfers from the grandparent to the parent generation could theoretically make it easier to have a child or an additional child, the macro relationship is just the opposite: a one standard deviation increase in support from the grandparent generation to the parent generation is associated with an 18 % decline in the odds of a higher order birth. The measure of downward support may reflect close intergenerational ties and may involve obligations to reciprocate with upward support to the grandparent generation in the future.

Consistent with gender equity theories, countries in which male partners contribute more substantially to housework have significantly higher levels of first births and higher order births. A 1 % increase in the share of housework done by male partners is associated with a 4 % increase in the odds of first and higher order births (odds ratios of 1.04).

The final model in Table 5 shows that the overall family support environment is associated with both first births and higher order births. The overall family support environment is more strongly related to higher order births than to first births. A one standard deviation increase in the overall family support environment factor is associated with 16 % increase in the odds of a first birth and a 33 % increase in the odds of a higher order birth.

Generally, family support environments were more strongly related to higher order births than to first births. To give a sense of the magnitude of the relationship between family support environment indicators and higher order births, we estimated the predicted probabilities. With all the covariates fixed at their mean values, the predicted probability of having a higher order birth between 2004 and 2007 was 0.25. In other words, under average conditions in the average country, 25 % of mothers had a second or higher order birth between 2004 and 2007. A one standard deviation increase in the overall family support environment factor was associated with the 0.06 increase in the predicted probability of a higher order birth, from 0.25 to 0.31. A one standard deviation increase in satisfaction with the government, flexible work hours, or perceived job mobility on their own increased the predicted probability of a higher order birth by 0.06. Several other family support environment variables were nearly as strongly related to higher order births: upward intergenerational support to the grandparent generation, multigenerational coresidence, and male housework contributions increased the predicted probability of a higher order birth by 0.05. The magnitude of the relationship was slightly smaller for family expenditures, satisfaction with education, satisfaction with health services, and downward transfers from the grandparent generation in a country.

4.4 Additional Analyses and Robustness Checks

We conducted several supplementary analyses to test the robustness of our results to different variable, model, and sample specifications, and these tests reinforced the findings we present.

In the analyses we presented, our measure of fertility intentions was inclusive of “definite” and “probably” planning a child. Of those intending a child, about 60 % say they are “probably” planning a child and 40 % are “definitely” planning a child. We repeated all the analyses using a more restrictive measure of “definitely” planning a child in the next 3 years. The results for this more restrictive measure of fertility plans are consistent with those we present in the paper.

In the results we present, our sample of mothers was defined by age of mother and no restrictions were imposed on the age of the youngest child. However, mothers with young children are more likely to be considering subsequent births than mothers of older-aged or adult children. We ran a separate set of analyses in which the mother sample was restricted to mothers with children 5 years old or younger (55 % of the full mother sample). These results were entirely consistent (and slightly stronger) compared with those we present on the full sample of mothers.

Our results were also robust to migration. Among our sample, 94 % of women were born in their country of residence or moved to their country of residence as a child. In principle, cross-country migrants who have or plan to have children may be motivated to migrate to a particular country because of its family support environment, in which case the support environment is not the cause of their preexisting fertility plans and childbearing histories. If this was the case, then the inclusion of these migrants in the analysis may inflate estimates of the relationship between family support environments and fertility outcomes. However, cross-country migrants do not affect our pattern of results. The results we present are robust to excluding 6 % of the sample that migrated as adults.

Family support environments may have changed between 2004 and 2006, the time period during which births were conceived. We explored whether measures of family support environments changed noticeably over the years following 2004, and found only a few sizeable shifts. In particular, unemployment rates increased in several countries; in a small number of countries, satisfaction with the economy declined; and satisfaction with government changed noticeably for the better in one country and for the worse in another. These changes were limited enough that they did not influence the overall pattern of results. An analysis of births as a function of family support environments in 2006 (or 2008 when 2006 data were not available) yielded results consistent with those presented.

5 Discussion

Using data from the ESS, we document wide geographic variations in fertility intentions and births that correspond to differences in family support environments across 20 European countries. Our findings reinforce and extend two ideas in the literature: that distinguishing by parity is important in studies designed to estimate macro influences on fertility outcomes, and that fertility intentions can provide a lens into influences on childbearing.

Our results provide support for the idea that higher order births are likely to be more responsive to policy and environmental changes compared with first births. In our cross-national analysis, we find that macro family support environments have a much weaker relationship with first birth intentions and first births than they do with higher order fertility intentions and higher order births. This is not surprising in light of prior theory and research suggesting that mothers put more weight on practical considerations, such as prevailing levels of support in their country, when deciding to have a subsequent birth than childless women do when deciding to have a first birth (Morgan 2003; Bulatao 1981). Prior studies that have distinguished by parity in a single country have also found that higher order fertility is more responsive to policy influences (Duclos et al. 2001; Ermisch 1988; Lappegard 2010), and our study extends this finding with cross-national evidence and across a wider range of domains of family support.

Most cross-national studies of family support environments and fertility rely upon the TFR, which means that estimated relationships between family support environments and fertility are an average across all the parities. For example, the conclusion from a recent review article by Gauthier (2007)—that policies have a small, weak positive influence on fertility—is largely based on studies that use the TFR as the dependent variable. Our pattern of findings suggests that, in studies such as this that rely on the TFR, underlying relationships between family support environments and higher order fertility may be muted by averaging in weaker or null effects for first births.

If countries enhance their support environments, can we expect to see an increase in second and higher parity births? Our results are consistent with this expectation but are far from definitive. The countries in our sample are heterogeneous, and improvements in the family support environment are unlikely to have the same influence in all the country settings. As one example, in Germany and Austria,

where family size ideals have dropped below two, mothers with one child may be less responsive to improvements in the macro environment for child rearing when compared with women in countries with ideal family size closer to two. Nevertheless, we suspect that higher order births are more responsive to family support environments in a broad range of settings. In separate analyses, we find that family support environments are more strongly related to higher order births than to first births in two distinct country clusters: countries with TFR above 1.5 (primarily Western and Northern Europe) and countries with TFR below 1.5 (Southern, Eastern, and Central Europe). The consistency of results across heterogeneous country clusters lends further support that higher order births are more responsive than first births to family support environments. Therefore, in countries wishing to increase fertility levels, it may be fruitful to target some policies to mothers contemplating subsequent births.

Our results support the use of fertility intentions as a means to understand cross-national differences in fertility. Although our study and others show that the correspondence between intentions and actual births is only moderate, understanding the determinants of fertility intentions may nevertheless be useful if the predictors of fertility intentions are similar to the predictors of actual births. Rindfuss et al. (1988) provided evidence that the *individual-level* predictors of fertility intentions and births are consistent in the US context. We extend their result by showing that the *macro-level* predictors of fertility intentions and actual births are largely consistent in our 20-country European sample. Our study adds to the case that understanding the determinants of childbearing plans provides a lens for understanding fertility behavior.

Our study suggests that across the 20-country European sample there is a large amount of coherence in the level of support across domains. Countries with supportive policy environments also tend to have supportive labor markets and supportive male partners. We document a moderate to high correlation across domains of support that presents a challenge in separating the influence of one domain from another. Although we cannot solve the challenge of disentangling policy, labor market, partner, and family influences on fertility, the correlation across these domains of support does imply that the omission of any one of these domains may lead to an overestimate of the independent influence of the other domains on fertility. For example, cross-national studies that focus on gender equity in the household without considering labor market conditions may overestimate the role of male housework in influencing fertility, if (unobserved) labor market conditions partially drive the male housework/fertility relationship.

In contrast to all the other domains of support, the relationship between intergenerational exchange of support (between parent and grandparent generations) and fertility seems primarily negative. Strong extended family ties are often assumed to have a pro-natal influence, but in the 20 countries in our sample, all of which have undergone the transition to below replacement fertility, we see a reversal of that expected correlation. Exchange of practical support between parent and grandparent generations and multigenerational coresidence are negatively related to higher order fertility. This relationship is particularly relevant in Eastern Europe, the continental region where intergenerational exchange and coresidence

tend to be most common. The negative relationship between intergenerational exchange and fertility is consistent with a sandwich generation effect in which anticipated obligations to elderly grandparents cause mothers to postpone or forego future childbearing. The sandwich generation hypothesis would need to be tested against the competing hypothesis that the negative relationship between intergenerational exchange and fertility is spurious and driven by a weak welfare state (or a weak labor market or low levels of support from male partners). In any case, the negative relationship between intergenerational exchange and fertility casts doubt on one hypothesized motive for having children: the anticipation of old-age support from grown children. This motive seems to have limited relevance in the context of advanced economies and well-developed welfare states.

Our choice of data and analytic approach involved tradeoffs. By defining family support environments at the country level, our analysis did not capture within-country variations in supports that might exist between childless women and mothers. Further, an analysis at the country level may elide some distinctions across countries in family support environments. In-depth analyses of particular countries reveal nuances that cannot be easily captured at the national level, but these case studies may or may not be generalizable to other country contexts. In contrast, our approach to describing family support environments captures some of the nuance that is typically missed by on-the-books policy variables and allows us to study a broader, 20-country population. By aggregating survey responses up to the country level, we capture the lived experience and perceptions of family support environments as expressed by women of childbearing age in each country.

Prior research has largely relied on what can be categorized as “objective” measures of the family support environment, such as governmental expenditures on families, weeks of paid parental leave, and unemployment rates. Objective measures of the family support environment do not capture feelings of whether the environment is satisfactory or inadequate. Therefore, incorporating perceptions of family support environments as a complement to data on policies, unemployment rates, and the like seems a fruitful extension for this area of research. Conceptually, measuring perceptions of the family support environment has the appeal of better capturing the mind-set of those making fertility decisions. We show that perceptions of the family support environment—namely, satisfaction with government, education systems, health services, the economy, and perceptions of job mobility and job security—are significantly related to fertility outcomes, especially for higher order births.

Our paper contributes to a theme in the fertility literature that practical considerations loom large when parents are deciding whether to have second or higher order birth; and, therefore, second and higher order births are more responsive to policy and other environmental influences. We argue that this insight should be a prominent consideration in designing policy aimed at increasing fertility from low to replacement levels and in designing research to measure the effects of these policies.

Appendix

See Tables 6 and 7.

Table 6 Country-level factor definitions

Factor components	Values	Samples	α
Support from grandparent generation			0.69
Your financial support to children not living in household	1 = No support, 2 = some support, 3 = a lot of support	Respondents with non-resident grown children	
Your everyday housework/care support to grown children not in household	1 = No support, 2 = some support, 3 = a lot of support	Respondents with non-resident grown children	
Child care provided by a grandparent	1 = Mother receives unpaid child care assistance from a grandparent, 0 = no child care from grandparent	18–40-year-old mothers with a resident child, age 12 or younger	
Support to grandparent generation			0.87
Financial support you receive from grown up children not in household	1 = No support, 2 = some support, 3 = a lot of support	Respondents with non-resident grown children	
Everyday housework/care you receive from grown children not in household	1 = No support, 2 = some support, 3 = a lot of support	Respondents with non-resident grown children	
Overall family support environment			0.44
Expenditures on families ^a			
Weeks paid parental leave ^b			
Satisfaction with government	0 = Not satisfied, 10 = most satisfied	18–40-year-old women	
Satisfaction with education system	0 = Not satisfied, 10 = most satisfied	18–40-year-old women	
Satisfaction with health system	0 = Not satisfied, 10 = most satisfied	18–40-year-old women	
Unemployment rate ^a			
Flexible work hours	1 = Not at all true, 4 = very true	Employed women 18–40 years old	
Perceived job mobility	0 = Not at all easy, 10 = extremely easy	Employed women 18–40 years old	
Perceived job security	1 = Not at all true, 4 = very true	Employed women 18–40 years old	
Satisfaction with economy	0 = Not satisfied, 10 = most satisfied	18–40-year-old women	
Prevalence of support from grandparent generation	See above	See above	

Table 6 continued

Factor components	Values	Samples	α
Prevalence of support to grandparent generation	See above	See above	
Multigenerational households (%)		All households	
Male share of housework in dual-earner couples	Percent of housework performed by male partners	Employed women 18–40 years old who were living with a male partner	

Data derived from ESS-2 except where noted

^a From Eurostat

^b ILO Travail database

Table 7 Family support environment descriptives for 20 countries

	Expenditures on families	Weeks paid parental leave	Satisfaction with government ^a	Satisfaction with education system ^a	Satisfaction with health system ^a	Unemployment rate	Flexible hours	Perceived job mobility	Perceived job security	Satisfaction with economy ^a
Northern	2.6	35.4	4.9	6.5	5.4	6.5	1.8	5.6	3.0	5.7
Denmark	3.8	50.2	5.4	7.4	6.0	5.6	1.9	5.7	3.0	6.6
Estonia	1.5	20.0	4.4	5.9	4.4	9.7	1.6	4.7	3.2	5.0
Finland	3.0	28.1	6.2	8.0	6.6	8.8	2.1	5.4	2.9	6.5
Norway	2.8	53.0	4.5	6.4	5.4	4.5	1.8	5.6	3.1	6.2
Sweden	2.9	47.0	4.8	5.8	4.9	5.5	2.0	5.6	2.8	5.0
UK	1.6	13.9	4.3	5.5	5.0	4.7	1.8	6.7	3.2	4.9
Western	2.2	20.5	4.3	5.5	5.8	7.1	2.0	4.5	2.9	4.6
Austria	3.0	16.0	4.0	5.4	6.4	4.9	1.8	4.4	3.0	5.2
Belgium	2.0	12.8	4.8	6.5	6.9	8.5	1.9	5.1	3.0	5.1
France	2.5	17.6	4.1	4.9	5.6	8.9	2.4	4.8	2.6	3.6
Germany	3.1	48.8	3.5	4.1	4.6	11.0	1.6	3.3	2.5	3.4
Netherlands	1.3	16.3	4.4	6.1	5.5	5.0	1.9	5.0	2.9	4.8
Switzerland	1.3	11.2	5.2	6.0	6.0	4.3	2.2	4.3	3.2	5.4
Eastern	1.7	38.0	3.3	5.3	4.5	11.5	1.6	3.5	2.4	3.6
Czech Republic	1.4	19.3	3.5	6.4	5.4	8.3	1.8	3.6	2.4	3.8
Hungary	2.5	68.0	3.1	4.6	3.2	6.1	1.5	3.0	2.6	3.2
Poland	0.8	16.0	2.4	5.4	3.0	19.0	1.5	3.2	2.4	3.3
Slovakia	1.7	32.2	2.9	5.3	5.8	18.1	1.7	3.9	1.9	3.2
Slovenia	1.9	54.3	4.4	4.8	4.8	6.1	1.7	3.9	2.8	4.6
Southern	1.3	17.1	3.9	4.7	4.4	9.3	1.5	4.1	2.5	3.7

Table 7 continued

	Expenditures on families	Weeks paid parental leave	Satisfaction with government ^a	Satisfaction with education system ^a	Satisfaction with health system ^a	Unemployment rate	Flexible hours	Perceived job mobility	Perceived job security	Satisfaction with zecconomy ^a
Greece	1.5	17.0	4.3	4.8	4.3	10.2	1.4	3.4	2.3	3.4
Portugal	1.2	17.9	2.3	4.1	3.5	6.7	1.4	4.0	2.5	2.6
Spain	1.2	16.3	5.0	5.3	5.5	11.0	1.6	4.8	2.8	5.2
	Support from grandparents ^b	Financial support from grandparents ^c	Housework support from grandparents ^c	Grandparents are usual source of child care (%) ^d	Support to grandparents ^b	Financial support to grandparents ^c	Housework support to grandparents ^c	Multigenerational households (%)	Male housework share, dual-earner couples	Overall family support environment ^b
Northern	-0.6	1.6	1.4	0.20	-0.4	1.1	1.3	21.6	29.5	1.0
Denmark	-1.5	1.5	1.3	0.12	-1.3	1.0	1.1	16.7	30.2	1.7
Estonia	-0.2	1.6	1.4	0.28	1.4	1.3	1.6	39.9	25.7	0.0
Finland	-0.3	1.7	1.4	0.24	-0.4	1.1	1.3	18.3	32.6	1.6
Norway	0.0	1.8	1.4	0.27	-1.0	1.0	1.2	18.6	28.0	1.2
Sweden	-0.7	1.6	1.4	0.02	-0.8	1.1	1.2	18.1	35.2	0.8
UK	-0.9	1.5	1.3	0.25	-0.4	1.1	1.2	17.8	25.6	0.7
Western	-0.1	1.6	1.4	0.28	-0.7	1.1	1.2	25.1	25.8	0.4
Austria	1.8	1.8	1.6	0.41	0.3	1.2	1.4	37.1	22.3	0.2
Belgium	0.3	1.6	1.5	0.33	-1.0	1.1	1.2	34.3	26.4	0.5
France	-0.3	1.6	1.4	0.14	-1.0	1.0	1.2	20.3	22.8	0.3
Germany	0.6	1.8	1.5	0.24	-0.1	1.1	1.4	27.2	27.7	-0.6
Netherlands	-2.0	1.4	1.3	0.26	-1.3	1.0	1.1	16.0	29.2	0.8
Switzerland	-1.2	1.4	1.3	0.31	-1.1	1.0	1.2	15.5	26.1	1.2

Table 7 continued

	Expenditures on families	Weeks paid parental leave	Satisfaction with government ^a	Satisfaction with education system ^a	Satisfaction with health system ^a	Unemployment rate	Flexible hours	Perceived job mobility	Perceived job security	Satisfaction with zecconomy ^a
Eastern	0.8	1.7	1.5	0.36	0.9	1.3	1.4	51.8	23.6	-1.1
Czech Republic	1.6	1.8	1.6	0.37	2.1	1.6	1.4	30.5	21.0	-0.7
Hungary	1.4	1.7	1.6	0.42	0.6	1.2	1.4	48.7	17.5	-1.4
Poland	0.5	1.6	1.5	0.31	0.0	1.2	1.3	60.0	24.8	-1.6
Slovakia	0.5	1.6	1.5	0.32	1.5	1.3	1.6	61.2	27.9	-1.3
Slovenia	0.1	1.6	1.4	0.38	0.3	1.2	1.4	58.5	26.5	-0.3
Southern	-0.3	1.5	1.4	0.30	0.4	1.3	1.3	40.7	19.8	-0.7
Greece	0.1	1.6	1.5	0.34	0.1	1.3	1.3	38.2	11.4	-1.1
Portugal	0.4	1.6	1.5	0.29	1.4	1.4	1.5	34.0	18.4	-1.4
Spain	-1.4	1.4	1.3	0.26	-0.5	1.1	1.2	50.0	29.5	0.3

Mean values for Northern, Western, Eastern, and Southern continental regions are simple averages of the country values

Source European Social Survey except "expenditures on families" and "unemployment rate" from Eurostat and weeks paid parental leave from the ILO Travail database

^a Scale 0–10 with 10 = most satisfied

^b Factor standardized with mean 0, standard deviation 1

^c Scale 1–3 with 1 = no support, 2 = some support, and 3 = a lot of support

^d Percent of households with children under 12 years old in which grandparents are the usual source of child care

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